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EXAMINER

CHANG, AUDREY Y

ART UNIT PAPER NUMBER

2872

DATE MAILED: 02/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/489,250

Applicant(s)

PHILLIPS ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7, 9-46, 49-53, 65-69, 71-77 and 79-84 is/are pending in the application.
- 4a) Of the above claim(s) 9-13, 15-46, 49-53, 65, 69 and 71-75 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 14, 66-68, 76, 77 and 79-81 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on *December 6, 2002* has been entered.

2. This Office Action is also in response to applicant's amendment filed on December 6, 2002, which has been entered as paper number 21.

3. By this amendment, the applicant has amended claims 4 and 5 and has newly added claims 82-84.

4. Claims 1-5, 7, 14, 66-68, 76, 77 and 79-84 remain pending in this application.

5. Claims 9-13, 15-46, 49-65, 69, and 71-75 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention/species, there being no allowable generic or linking claim.

6. The rejection to claim 4 under 35 USC 112, second paragraph, set forth in the previous Office Action is withdrawn in response to applicant's amendment.

Drawings

7. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "refraction patter" recited in claim 82, the "corner cubic reflector" recited in claim 83, and the "moiré pattern" recited in claim 84 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

8. **Claims 5, 82 and 83 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.**

The specification also fails to teach how could “a hologram” be capable of changing imagery when viewing angle changed, as recited in claim 5. A hologram, which is recorded with **one set** of object and reference beams, can only be viewed in **one** orientation. When the viewing angle changed the hologram image will not be able to be viewed. In order to have changed imagery in accordance with the change of the viewing angles a **composite of multiple of holograms** each can be viewed at different angles must be provided.

The specification fails to teach what is considered to be a “refraction structure” and which therefore fails to disclose the enablement of such structure, as recited in claim 82.

The specification fails to teach how to make the “corner cubic reflector” be at the first surface of a substrate and the optical coating be on the second surface, since the corner cubic reflector will block off the light from reaching the optical coating, the enablement of such structure is questionable.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 1-5, 14, 79 and newly added claims 82-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Uyama et al (PN. 5,700,550).**

Uyama et al teaches a transparent hologram seal that is comprised of a *base member* (2), serves as the light transmissive *substrate*, a *hologram forming layer* (4) having *hologram* formed within on a surface of the base member and a *transparent evaporated layer* (10), serves as the *color shifting optical coating*, such that the color of visible light changed according to the viewing angle when it is *transmitted* or *reflected* therefrom, (please see Figures 1-2, columns 5-6). Uyama et al teaches that by choosing desired material the base member and the hologram forming layer may be combined into a *single layer*, (please see column 5, lines 59-61). It is known in the art that a hologram essentially contains an interference pattern, which serves as the optical structure. Uyama et al further teaches that the hologram seal comprises an *adhesive layer* (16) on the evaporated layer, (please see Figure 9A).

This reference has met all the limitations of the claims with the exception that it does not teach explicitly that the transparent evaporated layer is formed at an opposite surface of the base member. However since the specification fails to teach having this particular arrangement would overcome any problem in the prior art and since by having the layer at one side or the other of the base member will not change the color-shifting function to the hologram seal such modification is therefore considered to be obvious matter of design choices to one skilled in the art. Furthermore, Uyama et al teaches that the base member and the hologram forming layer may be combined into a single layer this suggests the transparent evaporated layer, the color shifting coating, may be formed on the surface of the base member, wherein this surface may be identified as the *second* surface. From this teaching, it further shows that the function of the hologram does not change with respect to the position of the hologram is formed.

With regard to claims 2-3, Uyama et al teaches that the base member may be a *polyester* film, which is *plastic* material. Although this reference does not teach explicitly that the base member may also be made of other plastic materials as claimed, however since these materials are all well known plastic materials in the art for making transparent substrate to replace the polyester film by other plastic materials for making the base member would have been obvious to one skilled in the art. For it has been

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held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

With regard to claims 5 and 79, Uyama et al teaches the hologram forming layer may include a hologram of a general type but it does not teach explicitly that it is the types claimed. However composite holograms that have different viewing images as viewing angle changed or pixilated holograms that generate a composite holographic image are all very well known designs in the art, (such as known as color hologram, multiplexed hologram etc.). Such modification would have been obvious matter of design choice to one skilled in the art.

With regard to claims 82-84, this reference does not teach explicitly that the optical structure may also be "refraction structure", "corner cubic reflector" or "moiré pattern". However the specification fails to disclose what is considered as a refraction structure. Such feature cannot be examined here with details. Furthermore, corner cubic reflector and moiré pattern are all well known optical elements, to combine them with a color shifting interference filter to add color shifting effect to them are considered to be obvious modifications to one skilled in the art for the benefits of providing color shifting corner cubic reflector or moiré pattern.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Uyama et al as applied to claim 1 above, and further in view of the patent issued to Berning et al (PN. 4,930,866).

The transparent hologram seal having color shifting transparent evaporated layer for providing color shifting taught by Uyama et al as described for claim 1 has met all the limitations of the claims. Uyama et al teaches that the color shifting evaporated layer (10) comprises a multilayer interference film structure with dielectric layers, (please see Figure 1), but it does not teach explicitly that it contains an absorber layer. Berning et al in the same field of endeavor teaches a color shifting multilayer interference

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coating that is comprised of a chromium layer (16, Figure 1) which is a known absorber layer. It would then have been obvious to one skilled in the art to apply the teachings of Berning et al to modify the transparent evaporated layer of Uyama et al accordingly for the benefit of providing a color shifting layer with a desired of color shifting properties.

12. Claim 80 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Uyama et al in view of the patent issued to Berning et al (PN. 4,930,866).

Uyama et al teaches a *transparent hologram seal having color shifting transparent evaporated layer* for providing color shifting taught with details described for **claim 1** has met all the limitations of the claims. Uyama et al teaches that the color shifting evaporated layer (10) comprises a multilayer interference film structure with dielectric layers, (please see Figure 1), but it does not teach explicitly that it contains an absorber layer. Berning et al in the same field of endeavor teaches a color shifting multilayer interference coating that is comprised of a chromium layer (16, Figure 1) which is a known absorber layer, a magnesium fluoride layer (17) which is known dielectric layer and a aluminum layer (18) which is a known reflector layer, (please see Figure 1, column 4). It would then have been obvious to one skilled in the art to apply the teachings of Berning et al to modify the transparent evaporated layer of Uyama et al accordingly for the benefit of providing a color shifting layer with a desired of color shifting properties.

13. Claims 66-68, 76-77 and 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent Berning et al (PN. 4,930,866) in view of the patent issued to Uyama et al (PN. 5,700,550).

Berning et al teaches a *thin film optically variable article having color shifting property* in accordance with the change of the viewing angle wherein the article has a *structure* that is capable of being transferred to an object via *hot die stamp transfer process*. The hot die stamp structure comprises a

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carrier film (21), a *release layer* (24), a substantially transparent *substrate layer* (13), an *interference coating* (14) that serves as the *color shifting optical coating* and an *adhesive* (26), (please see Figure 1 and columns 3-4). The interference coating has color shifting property when viewed with different viewing angles.

This reference has met all the limitations of the claims with the exception that it does not teach explicitly that the substrate element has an *interference pattern* formed upon it. Uyama et al in the same field of endeavor teaches a transparent hologram seal that has color shifting property when viewed with different angle wherein the substrate has a *hologram-forming layer* for forming a hologram upon one of the surface, (please see Figure 1). It would have been obvious to one skilled in the art to apply the teachings of Uyama et al to modify the thin film optically variable article to include a hologram within the substrate for the benefit of adding hologram image to the article for adding more authentic feature to the article.

With regard to claims 67 and 68, Berning et al teaches that the carrier film is made of polymer film such as PET, which is one type of plastic material and the release layer is made of waxes, (please see column 3, lines 54-57 and lines 69).

With regard to claim 70, Berning et al teaches that the color-shifting interference coating comprises a *chromium layer* (16) which is a known *absorber* in the art, a *magnesium fluoride layer* (17) which is a known *dielectric layer* and an *aluminum layer* (18) which is a known *reflector layer*, (please see Figure 1 and column 4).

With regard to claims 76 and 77, Berning et al teaches that the adhesive may be *thermally* activated, (please see column 6, line 8). Uyama et al teaches the adhesive may be *acrylic* series adhesive agent, (please column 6, lines 48-54). Although these references do not teach explicitly that the adhesive may also be UV activated adhesive however since this type of adhesive agent is quite well known in the

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art such modification would have been obvious matter of design choice to one skilled in the art since there is not criticality of using the type of adhesive over the prior art agent.

Response to Arguments

14. Applicant's arguments filed on December 6, 2002 have been fully considered but they are not persuasive. The newly added claims have been fully considered and they are rejected for the reasons stated above.

15. In response to applicant's arguments which state that the cited Uyama et al reference is different from the instant application since the "hologram would essentially disappear due to index matching of the base layer 2 with hologram forming layer 4" (please see the Remark) the examiner respectfully disagrees for the reasons stated below. Firstly, the examiner respectfully asks the applicant to explain why the hologram, being formed as interference fringe or relief pattern, will disappear when the hologram forming layer and the base layer has same index of refraction? The fundamental principle of re-producing the hologram is by making incident light beams strikes the interference fringes or relief pattern of the hologram where different phase modulation form the fringes or relief pattern will be imparted on the incident light beams and the light beams will interfere with each other to create certain interference pattern. This process has nothing to do with the index refraction between the hologram-forming layer and the base layer. Furthermore, Uyama reference *specifically* teaches that the hologram forming layer and the base layer may be combined into a single layer, which further proof the hologram will not disappear due to index matching, (please see column 5 lines 59-61).

16. In response to applicant's arguments, which state that the cited Berning reference teaches a non-transparent/reflective color-shifting stack, which presents no motive to modify the cited Uyama structure that is of transmissive structure, the examiner respectfully disagrees for the reasons stated below. Firstly, the cited Uyama disclose **both transparent** structure as well as **reflective** structure of the color shifting coating the only difference between the two structures is in the reflective structure the *transparent*

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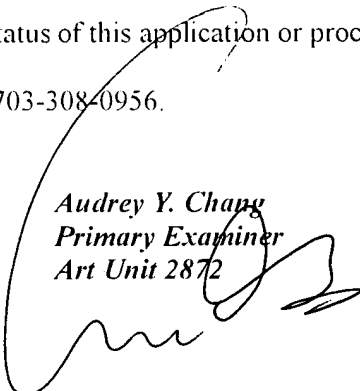
evaporated layer (10) is coated with a *reflective* layer (36, Figure 20). This reflection mode is the common practice in the art for making reflection mode of an interference filter and it is the same structure as disclosed by Berning wherein the reflection mode of the color shifting filter is formed by forming transparent multilayer interference coating including a reflector layer. The dielectric layer of the interference filter is transparent. The motivation and suitability for combining the teachings of Berning with Uyama are clear.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Audrey Y. Chang
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.
February 14, 2003